

REMARKS/ARGUMENTS

In response to the Office action dated October 6, 2004 ("OA"), applicant respectfully requests the Office to enter the amendments set forth above and consider the following remarks. By this response, claim 1 has been amended, and new claims 21-22 have been added. No new matter has been added by this response. After entry of this paper, claims 1-18 and 21-22 will be pending in this application. Authorization is hereby given to charge any fees (e.g., extension fees) associated with this response to Deposit Account No. 50-1078.

In the Office action, the Examiner: (i) rejected claims 1-7 and 10-18 under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent 6,203,683 to Austin et al. ("Austin"), and (ii) rejected claims 8 and 9 under 35 U.S.C. §103(a) as allegedly being unpatentable over Austin.

Claim Rejections - 35 U.S.C. § 102(e)

Claims 1-7 and 10-18 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Austin et al. (U.S. Patent 6,203,683).

In view of the present amendment to claim 1, Applicants respectfully disagree. Claim 1, as amended, recites a miniature analytical device including, *inter alia*, the following:

"... an array of temperature-controlled zones including reactants, and each said temperature-controlled zone is defined by cartridge structure surrounding an area of space in which a reactant is contained; an array of heat sources, wherein the array of heat sources is positioned to correspond to the array of temperature-controlled zones so that each heat source is arranged to provide temperature regulation to a corresponding temperature-controlled zone, and wherein one or more of the heat sources emit localized radiation to provide heating in the corresponding temperature-controlled zone; a temperature monitor that monitors reactant temperature; and a modulator that modulates the array of heat sources to regulate temperature in one or more of the corresponding temperature-controlled zones; whereby each temperature-controlled zone is controllable to a designated temperature."

Austin, however, fails to teach or suggest a miniature analytical device with thermal regulation as is now recited in claim 1. Instead, Austin, as illustrated in Figure 1, teaches multiple microfluidic channels 16 and a single trapping electrode 18 for thermocycling nucleic acids (e.g., a polyelectrolyte, such as DNA) within the various microfluidic channels 16. Thus, Austin fails to teach or suggest, inter alia, that the "temperature-controlled zone is defined by cartridge structure surrounding an area of space in which a reactant is contained" (See, e.g., claim 1, above; supported, inter alia, by paragraphs [0029], lines 14-15, and [0021], lines 8-9.) The channels and associated 'zones' of Austin, even as interpreted by the Office (OA, pg. 6) against unamended claim 1, simply cannot anticipate the claim as drawn. For example, the disclosure purported to be an 'array' (Austin, col. 3, lines 22-24) does not teach or suggest "an array of temperature-controlled zones," as now delineated within claim 1. Furthermore, given the interrelationship of the array of heat sources and the array of temperature controlled zones now recited in claim 1 -- e.g., the language directed to the heat sources, their corresponding zones, and containment of reactants within the zones -- the channels of Austin simply cannot be read onto the zones of claim 1. Indeed, prior to the instant amendments, the Office had indicated that "Applicant has not defined the claimed zones such that it would be different from the channels in Austin. In other words, Applicant has not defined the temperature-controlled zones in the claims such that it precludes the claimed zones from being in the same channel." (OA, pg. 6, lines 8-11.)

Here, claim 1 now specifies cartridge structure that acts to contain the reactants within the zone subject to temperature control. The channels as prior art advanced by the Office cannot correspond to the claimed zones because reactants in Austin are not constrained by physical cartridge structure surrounding the area where the reactants are contained and radiated by the respective heat source. Instead, the reactants in Austin are free to flow in the channel, and the only different zones are for the same reactant. Thus, here again, Austin fails to teach or suggest cartridge structure that

maintains the reactants in discrete zones matched-up to localized heat sources, and thus cannot anticipate claim 1.

For at least the foregoing reasons, Applicants respectfully submit that claim 1, as amended, is not anticipated by Austin. Accordingly, Applicants submit that the rejection of claim 1 under 35 U.S.C. §102(e) has been overcome, and that the claim should be allowed.

Claims 2-7 and 10-18 depend upon claim 1 and therefore include all elements and recitations thereof. Claims 2-7 and 10-18 are thus allowable over Austin for at least the same reasons as claim 1. Applicants therefore request that the rejection of claims 2-7 and 10-18 under 35 U.S.C. §102(e) be withdrawn and the claims allowed.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 8 and 9 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Austin et al. (U.S. Patent 6,203,683).

Claims 8 and 9 depend upon claim 1 and therefore include all elements and recitations thereof. Claims 8 and 9 are thus allowable over Austin for at least the same reasons set forth above with respect to claim 1. Accordingly, Applicants request that the rejection of claims 8 and 9 under 35 U.S.C. §103(a) be withdrawn and the claims allowed.

New Claims

New claim 21 is a method claim having scope commensurate with that of device claim 1, including limitations corresponding to all of the recitations set forth in claim 1, as amended herein. Thus, for at least the reasons set forth above in connection with claim 1, Applicants submit that claim 21 is also allowable over Austin (and the remaining art of record). Furthermore, claim 22 depends from patentable claim 21, and thus is also allowable for at least the same reasons as claim 21.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of the instant application in view of this response, and the


timely allowance of the pending claims. Furthermore, the Examiner is urged to contact the undersigned by telephone, at (650) 849-6643, if there are any additions/changes Applicants can make to facilitate or expedite allowance of the application.

Please grant any extensions of time required to enter this response and charge any additional required fees to deposit account 50-1078.

Respectfully submitted,

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